Date: 7/19/2002

To: EPA VB/I-70 Project

From: Richard Machado

Re: Proposed Alternatives for the VB/I-70 Remediation

I have many questions and comments with regard to EPA's proposed alternatives for the VB/I-70 Superfund project. To date, my wife and I have had great difficulty getting legitimate responses to our questions. During the meeting with congresswoman DeGette for example, my wife asked about owners of section 8 housing or landlords otherwise receiving federal money and their obligation, if any, to have lead testing performed on their properties. The EPA representative expressed grave concern over this matter and promised to "look into the matter", but failed to return several voice messages regarding the outcome to this question. My wife is concerned about the many children often living in section 8 housing. As a pediatrician at Denver Health and the Children's Hospital of Denver, I think she at least deserved the courtesy of a returned call if not an answer.

I have also been disappointed in what I can best describe as demeaning or insulting attitude toward Clayton residents. Our opinions and concerns are routinely dismissed. I have heard Clayton residents insulted with the threat of heavy equipment noise and traffic for example as to why they should not want a cleanup. When citing findings from published, peer reviewed, health and environmental studies as well as resulting clean-up levels from other superfund sites, primarily in the Eastern United States, my wife and I were given the response that the science in the West is better than the science in the East. This is a ludicrous and insulting dismissal of scientific research. Keep in mind that I have a B.S. degree in health physics from the Georgia Institute of Technology while my wife has a masters and MD degree from Washington University School of Medicine, which is routinely one of the top five medical schools in the country. Couple this with the several research publications my wife has and the fact that she is currently performing bench research in the field cystic fibrosis, one can sense our amazement with how quickly and flippantly our cited scientific findings from renowned researchers was being dismissed.

This trend has seemed to continue with the release of the health impact study by ATSDR. I would like to know, very specifically, how the findings of this study were incorporated into the current proposed clean-up alternatives. The EPA alternatives appear to me to be unchanged from those I read at the public meetings when the study was released by ATSDR. Is it the EPA's opinion that the findings of this health study are to also be dismissed? This study predicts potential health effects from arsenic in soil at levels much lower (approx. 42 ppm) than the action levels proposed in the EPA alternatives (128 ppm or higher). Furthermore, the arsenic in soil data predicts with a very high level of confidence that hotspots of arsenic are likely to exist in yards at 6 to 7 times the yard average arsenic level. Arsenic hot-spot soil concentration data correlates amazingly well to average soil arsenic concentrations. A yard cleaned to the best EPA proposal of 128 ppm would likely leave a hot-spot in the yard at a level from about 770 to 900 ppm. This is like an Arsenic land mine in the yard. If a child inadvertently stumbles into it, the outcome could be a negative one to say the least.

The first meeting regarding the release of the ATSDR health impact study was with local, state, and federal officials. At this meeting, I inquired about the 400 ppm lead standard for bare soil in children's play areas. I was told that I was wrong, that 400 ppm is the level at which no further study, action, or consideration would be given. I was subsequently given a copy of an EPA interoffice memo from 1994 outlining this position. This disturbed me as I was referencing the January 2001 Code of Federal Regulations, promulgated by no other than the EPA. It appears to me, that for this project, the EPA is not following its own guidelines and regulations. Refer below to correspondence forwarded to various government officials and colleagues outlining my experience from the public meeting.

One of the issues is this 400 ppm in children's play areas. I tried to get some information about **Environmental Protection Agency 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead; Final Rule** (see web-link below)
Where it defines the hazard standard as 400ppm in the bare soil of children's play areas. I was told it didn't apply somehow and then got some tangent lecture about the chemistry of lead and paint. My question that was never answered to my satisfaction is, "Does this federal regulation apply to our project? If it doesn't, what regulation does apply? If there is no regulation why shouldn't we use 40 CFR Part 745 as guidance?"

I think the regulation does apply. I did some more looking and cut and pasted this from the EPA website:**www.epa.gov/lead/leadhaz.htm**

Residential Lead Hazard Standards - TSCA Section 403

As part of EPA's ongoing efforts to protect children from lead poisoning, the Agency announces, new standards to identify dangerous levels of lead in paint, dust and soil. These new national standards are more protective than previous EPA guidance...

These hazard standards will also serve as general guidance for other EPA programs engaged in toxic waste cleanups.

Under the new standards, lead is considered a hazard if there are greater than: 400 parts per million (ppm) of lead in bare soil in children's play areas
This action appears in the **January 5, 2001 Federal Register**

I was given the brush-off type of answer about the reg. being TSCA and this site (VB/I-70) is CERCLA. As you can clearly see by the highlighted line in the middle it says that these hazard standards will serve as guidance for other EPA programs engaged in toxic waste clean-ups. I don't want to pat myself on the back too much but using common sense I thought that it should serve as guidance. If this is the only number EPA has, then this is exactly what they are supposed to be doing. I can't help but get the feeling that EPA hopes that I will be frustrated and drop the whole issue but it just makes me more determined when I still think I'm right.

It isn't so much that I want to push the 400 ppm standard, it is the insulting and demeaning way that I and my questions are dismissed. If Clayton resident environmental scientists and board certified pediatricians are being treated as though we are uneducated and intellectually inferior, then how are our hard-working, non-college degreed residents being treated? This brings me to environmental justice (EJ) issues. It is well known and documented that low-income, minority, working class, urban neighborhoods such as Clayton, disproportionately shoulder the brunt of environmental pollution and the accompanying health effects. The EPA claims that environmental justice was served on this project by "allowing" us to participate in the decisions affecting our community. I understand that EJ mandates going above and beyond what would normally be done if Clayton were not a low-income, minority, etc. neighborhood. It would appear to me that nothing was done above or beyond that which is routinely done at other EPA sites.

I have worked at several environmental and superfund clean-up sites, mostly in rural areas and areas where EJ is not an issue, and in every case, community members were integral members of the decision process. I might also add that these rural areas with low population density usually had lower clean-up levels than what are being proposed for densely populated Clayton. In cases where clean up levels were higher, they were not much higher, with the end use being primarily conservation or natural areas.

There are also several publications correlating lead in soil concentrations to lead in blood levels. The results of the majority of these studies indicate lead clean-up levels lower than 540 ppm to ensure lead in blood levels of children below 10 ug/dL. It is my opinion that we need to keep lead in blood levels of children significantly below 10 ug/dL in hopes that they will not experience a negative effect from just this one parameter. Ironically, my recent lead in blood level result from May 2002 was 7 ug/dL. Fortunately, except for pregnant women or women of child bearing age, the impact on an adults is much less because our development has completed. It concerns me that lead in blood of children exhibiting soil pica behavior or even normal hand to mouth activity, could be much higher than my result of 7 ug/dL.

Keep in mind that children in Clayton already have multiple strikes against them. This VB/I-70 project only addresses 2 of those. Other issues facing Clayton children are poorer access to health care, lack of health insurance, poorer schools, higher air pollution, lower incomes, lack of pre-natal health care, higher crime, higher alcohol and drug abuse rates, and many more. This is exactly why environmental justice mandates going above and beyond normal actions, to try and help offset the many other anchors weighing our kids down. Issues that affluent neighborhoods never see, much less experience.

From EPA Lead safe site

In addition, the "level of concern" for blood lead levels has continued to drop. Most recently the CDC has recommended 10ug/dL as the level that should trigger environmental or clinical intervention. To date, only about 5% of homes contaminated with lead have in fact been abated nationwide. The soil in yards of inner city homes is also potentially a major contributor to lead poisoning in youth, is largely unregulated and thus ignored by current programs. To compound the issue, the turnover in the poorest inner city homes leads to a new, largely uninformed, often immigrant population that reside in the most poorly maintained and highly contaminated areas of our cities.

The current focus of major HUD funding is directed at structure abatement. The focus of this EPA/EMPACT project is directed at collecting residential soil lead data with the aim of increasing public awareness of this health risk and applying low-cost mitigation techniques. The long term goal is to develop a "template for community action" which might be replicated in impacted communities

Lead levels in children's blood was set at 10 ug/dL in 1991, Over 10 years ago. As you can see by the highlighted text, even in 1991, theories were emerging that negative effects may occur below 10 ug/dL.

As you can see, the acceptable level of lead in the blood of children has dropped significantly over the years.

From website http://www.epa.gov/lead/leadtpbf.htm

Preventing Lead Poisoning in Young Children

U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control

Publication date: 10/01/1991

ADVISORY COMMITTEE ON CHILDHOOD LEAD POISONING PREVENTION
New data indicate significant adverse effects of lead exposure in children at blood lead levels previously believed to be safe. Some adverse health effects have been documented at blood lead levels at least as low as 10 ug/dL of whole blood .
The 1985 intervention level of 25 ug/dL is, therefore, being revised downwards to 10 ug/dL.
A multitier approach to follow up has been adopted.
Primary prevention efforts (that is, elimination of lead hazards before children are poisoned) must receive more emphasis as the blood lead levels of concern are lowered.
The goal of all lead poisoning prevention activities should be to reduce children's blood lead levels below 10 ug/dL. If many children in the community have blood lead levels > or = ug/dL, community wide interventions (primary prevention activities) should be considered by appropriate agencies. Interventions for individual children should begin at blood lead levels of 15 ug/dL.
Childhood lead poisoning is one of the most common pediatric health problems in the United States today, and it is entirely preventable. Enough is now known about the sources and pathways of lead exposure and about ways of preventing this exposure to begin the efforts to eradicate permanently this disease. The persistence of lead poisoning in the United States, in light of all that is known, presents a singular and direct challenge to public health authorities, clinicians, regulatory agencies, and society.
LEAD POISONING IS ONE OF THE MOST COMMON AND PREVENTABLE PEDIATRIC HEALTH PROBLEMS TODAYThis document provides guidelines on childhood lead poisoning prevention for diverse groups. Public health programs that screen children for lead poisoning look to this document for guidance on screening regimens and public health actions. Pediatricians and other health-care practitioners look to this document for information on screening and guidance on the medical treatment of poisoned children. Government agencies, elected officials, and private citizens seek guidance about what constitutes a harmful level of lead in blood what the current definition of lead poisoning is and what blood lead levels should trigger environmental and other interventions.
IT IS NOT POSSIBLE TO SELECT A SINGLE NUMBER TO DEFINE LEAD POISONING FOR THE VARIOUS PURPOSES OF ALL OF THESE GROUPS.

Epidemiologic studies have identified harmful effects of lead in children at blood lead levels at least as low as 10 ug/dL. Some studies have suggested harmful effects at even lower levels, but the body of information accumulated so far is not adequate for effects below about 10 ug/dL to be evaluated definitively. As yet, no threshold has been identified for the harmful ejects of lead.

Nevertheless, important environmental sources and pathways of lead remain. Lead-based paint and lead-contaminated dusts and soils remain the primary sources and pathways of lead exposure for children. In addition, children continue to be exposed to lead through air, water, and food, as well as occupations and hobbies of parents and caretakers. The focus of prevention efforts, therefore, must expand from merely identifying and treating individual children to include primary prevention-preventing exposure to lead before children become poisoned. This will require a shared responsibility among many public and private agencies. Public agencies will have to work with pediatric health-care providers to identify communities with childhood lead- poisoning prevention problems and unusual sources of lead and to ensure environmental followup of poisoned children. Public housing and economic development agencies will have to integrate lead paint abatement into housing rehabilitation policies and programs. Health- care providers will need to phase in virtually universal screening of children. Public and private organizations must continue to develop economical and widely-available blood lead tests to make such screening possible. Public and private housing owners must bear a portion of the financial burden for abatement

LEVELS OF CONCERN

Since 1970, our understanding of childhood lead poisoning has changed substantially. As investigators have used more sensitive measures and better study designs, the generally recognized level for lead toxicity has progressively shifted downward. Before the mid-1960s, a level above 60 ug/dL was considered toxic (Chisolm and Harrison, 1956). By 1978, the defined level of toxicity had declined 50% to 30 ug/dL figure 2.2 shows how the federal definition of an elevated blood lead level has changed over the years.

Very severe lead exposure in children (blood lead levels 380 ug/dL) can cause coma, convulsions, and even death. Lower levels cause adverse effects on the central nervous system, kidney, and hematopoietic system. Blood lead levels as low as 10 ug/dL, which do not cause distinctive symptoms, are associated with decreased intelligence and impaired neurobehavioral development (Davis and Svendsgaard, 1987; Mushak et al., 1989). Many other effects begin at these low blood lead levels, including decreased stature or growth (Schwartz et al., 1986; Bornschein et al., 1986; Shulka et al., 1989), decreased hearing acuity (Schwartz and Otto, 1987), and decreased ability to maintain a steady posture (Bhattacharya et al., 1988). Lead's impairment of the synthesis of the active metabolite 1,25-(OH)2, vitamin D is detectable at blood lead levels of 10-15 ug/dL. Maternal and cord blood lead levels of 10-15 ug/dL appear to be associated with reduced gestational age and reduced weight at birth (ATSDR, 1988). Although researchers have not yet completely defined the impact of blood lead levels <10 ug/dL on central nervous system function, it may be that even these levels are associated with adverse effects that will be clearer with more refined research.

SOIL AND DUST

Soil and dust act as pathways to children for lead deposited from paint, gasoline, and industrial sources. The long-term efficacy and cost-effectiveness of different measures to reduce lead levels in soil need to be evaluated.

Reduction of dust lead is important both as part of deleading and as a means of interim risk reduction. Soil and dust act as pathways to children for lead deposited by primary lead sources such as lead paint, leaded gasoline, and industrial or occupational sources of lead. Since lead does not dissipate, biodegrade, or decay, the lead deposited into dust and soil becomes a long-term source of lead exposure for children. For example, although lead emissions from gasoline have largely been eliminated, an estimated 4-5 million metric tons of lead used in gasoline remain in dust and soil, and children continue to be exposed to it (ATSDR, 1988).

Because lead is immobilized by the organic component of soil, lead deposited from the air is generally retained in the upper 2-5 centimeters of undisturbed soil (EPA, 1986). Urban soils and other soils that are disturbed or turned under may be contaminated down to far greater depths. Soil lead levels within 25 meters of roadways are typically 30-2,000 parts per million (ppm) higher than natural levels, with some roadside soils having concentrations as high as 10,000 ppm. Soils adjacent to houses painted with exterior lead paints may also have lead levels above 10,000 ppm. Measured lead levels in soil adjacent to smelters range as high as 60,000 ppm (EPA, 1986).

As part of normal play and hand-to-mouth exploratory activities, young children may inhale or ingest lead from soil or dust. Ingestion of dust and soil during meals and playtime activity appears to be a more significant pathway than inhalation for young children (EPA, 1986).

Even if ongoing deposition of lead into soil and dust is eventually halted, measures will have to be taken to reduce exposures from lead- contaminated soils and dusts. Until data demonstrating the efficacy and cost-effectiveness of permanent soil and dust abatement measures are available, interim risk reduction steps will be needed in some places. Dust control via wet mopping and frequent hand washing has been shown to reduce the blood lead levels of children with high blood lead levels (Charney et al., 1983), but this is not a permanent solution so long as the source of the lead in the dust remains. For urban and smelter communities, where outdoor soil can be a major source of lead in house dust (Diemel et al., 1981; Yankel et al., 1977), indoor dust abatement may not be effective unless abatement of soil lead is also conducted. Soil abatement may consist of either establishing an effective barrier between children and the soil or the removal and replacement of at least the top few centimeters of soil. Grass cover, if properly maintained, may be an effective means of limiting exposure to dusts originating from lead-contaminated soil (Jenkins et al., 1988).

The idea that residents of neighborhoods such as Clayton are in poorer health, receive poorer health care, and bare the brunt of environmental hazards should no longer be a

subject of debate, but rather accepted as fact. It should only be a subject of solution and action.

FROM ATSDR WEB SITE FOR MISS. DELTA PROJECT

Minority Health Programs

Preventing adverse health effects in disadvantaged communities and people of color exposed to environmental hazards is a priority for government health agencies at all levels. Minority populations, particularly African Americans, Hispanics, and Native Americans, suffer disproportionately from preventable morbidity and mortality. Regardless of income, education, or geographic locale, these populations are in poorer health than their white, non-Hispanic counterparts. However, the health impact of the environment on minority populations has not been adequately characterized.

Reducing the disparity in health and improving quality of life among disadvantaged groups and among ethnic and racial populations impacted by environmental hazards will require the collective commitment of health professionals and environmental health scientists. Federal agencies and state health departments in the Region all have health outcome data that characterize the health of the public. For example, mortality data and disease incidence data are generally available. However, resources have generally been lacking in terms of linking morbidity and mortality databases and environmental quality data

Following are excerpts from records of decisions (RODs) for various other superfund projects. These are just a few that I looked up. As you can see, many other sites are receiving decisions of much lower clean-up levels in sparsely populated areas.

Doerun plant clean-up in Herculanium, Missouri
The AOC requires that a soil concentration of 400 mg/kg of lead will be used as an initial cleanup level. This initial cleanup level was selected because it has been shown to be effective at lowering blood lead levels.

The Weldon Spring Site Remedial Action Project in the predominantly white St. Louis suburb county of St. Charles, MO. WSSRAP soil clean-up levels are 240 ppm for lead and 45 ppm for soil.

Record of Decision (ROD): SITE HISTORY/DESCRIPTION: The 485-acre Sacramento Army Depot (SAAD) site is a military facility in Sacramento County, California. Land use in the area is predominantly commercial and light industrial. PERFORMANCE STANDARDS OR GOALS: Chemical- specific soil clean-up goals for the primary metals of concern including arsenic 5 mg/kg; and lead 174 mg/kg. (5 ppm and 174 ppm respectively)

Glynn County Georgia: **PERFORMANCE STANDARDS OR GOALS: Chemical-specific surface soil *goals* are based on the risk assessment of 1x10[-6] for future land use, and include; arsenic 5 mg/kg (5 ppm).**

I respectfully request that EPA go back to the drawing board on this project and reassess the health impact study by ATSDR as well as waiting for results of other studies such as the Kids at Play Health Survey. It may also be prudent to benchmark other superfund sites to see how EJ issues were handled there and why it seemed necessary to clean up many sites to lower levels.

Sincerely,

Richard Machado

Clayton Resident.